

## § 87.30

(3) Class TP of rated output equal to or greater than 1,000 kilowatts manufactured on or after January 1, 1984:

$SN=187(ro)^{-168}$  (ro is in kilowatts)

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## Subpart D—Exhaust Emissions (In-use Aircraft Gas Turbine Engines)

### § 87.30 Applicability.

The provisions of this subpart are applicable to all in-use aircraft gas turbine engines certified for operation within the United States of the classes specified beginning on the dates specified.

### § 87.31 Standards for exhaust emissions.

(a) Exhaust emissions of smoke from each in-use aircraft gas turbine engine of Class T8, beginning February 1, 1974, shall not exceed: Smoke number of 30.

(b) Exhaust emissions of smoke from each in-use aircraft gas turbine engine of class TF and of rated output of 129 kilonewtons thrust or greater, beginning January 1, 1976, shall not exceed:

$SN=83.6(ro)^{-0.274}$  (ro is in kilonewtons).

(c) The standards set forth in paragraphs (a) and (b) of this section refer to exhaust smoke emissions emitted during operations of the engine as specified in the applicable section of subpart H of this part, and measured and calculated in accordance with the procedures set forth in this subpart.

[47 FR 58470, Dec. 30, 1982, as amended at 48 FR 2718, Jan. 20, 1983]

## Subparts E-F [Reserved]

## Subpart G—Test Procedures for Engine Exhaust Gaseous Emissions (Aircraft and Aircraft Gas Turbine Engines)

### § 87.60 Introduction.

(a) Except as provided under § 87.5, the procedures described in this subpart shall be the test program to determine the conformity of new aircraft gas turbine engines with the applicable standards set forth in this part.

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(b) The test consists of operating the engine at prescribed power settings on an engine dynamometer (for engines producing primarily shaft power) or thrust measuring test stand (for engines producing primarily thrust). The exhaust gases generated during engine operation are sampled continuously for specific component analysis through the analytical train.

(c) The exhaust emission test is designed to measure hydrocarbons, carbon monoxide, carbon dioxide, and oxides of nitrogen concentrations, and to determine mass emissions through calculations during a simulated aircraft landing-takeoff cycle (LTO). The LTO cycle is based on time in mode data during high activity periods at major airports. The test for propulsion engines consists of at least the following four modes of engine operation: taxi/idle, takeoff, climbout, and approach. The mass emission for the modes are combined to yield the reported values.

(d) When an engine is tested for exhaust emissions on an engine dynamometer or test stand, the complete engine shall be used with all accessories which might reasonably be expected to influence emissions to the atmosphere installed and functioning, if not otherwise prohibited by § 87.62(a)(2). Use of service air bleed and shaft power extraction to power auxiliary gearbox-mounted components required to drive aircraft systems is not permitted.

(e) Other gaseous emissions measurement systems may be used if shown to yield equivalent results and if approved in advance by the Administrator or the Secretary.

[47 FR 58470, Dec. 30, 1982, as amended at 49 FR 31875, Aug. 9, 1984; 62 FR 25366, May 8, 1997]

EFFECTIVE DATE NOTE: At 62 FR 25366, May 8, 1997, § 87.60 was amended by revising paragraph (c), effective July 7, 1997. For the convenience of the user, the superseded text is set forth as follows:

### § 87.60 Introduction.

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(c) The exhaust emission test is designed to measure hydrocarbons, carbon monoxide and carbon dioxide concentrations, and to determine mass emissions through calculations during a simulated aircraft landing-takeoff cycle (LTO). The LTO cycle is based